California Institute for Regenerative Medicine

Simultaneous in vivo dynamic contrast-enhanced magnetic resonance and scintigraphic imaging.

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Public Summary:
In this study, we investigated the in vivo application of an integrated small-animal magnetic resonance (MR) and gamma-ray imaging system that consists of a semiconductor-based radiation detector, a parallel-hole collimator, and a specialized radiofrequency coil. Gadodiamide and (99m)Tc sestimibi agents were injected simultaneously into a mouse, and simultaneous dynamic contrast-enhanced MR and scintigraphic images of the kidneys were acquired. The time curves of both the MR signal intensity and radioactivity indicate a rapid uptake of the agents followed by a more gradual excretion, consistent with the previously reported literature. Our results demonstrate the feasibility of measuring multiple biological processes at the same time using both MR contrast agents and radiotracers.

Scientific Abstract:
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